

ISWIM NEWSLETTER

Message from the ISWIM president

ISWIM Members and Friends,

Welcome to the first edition of our Newsletter for 2022.

ISWIM produces this Newsletter to inform its membership and the broader community about the developments within the association and to provide a snapshot of the world of WIM. This edition of the newsletter presents the latest research projects from the United States, the new products and certifications of vendor equipment and user/vendor use cases from Tanzania, Slovenia, Austria, Switzerland, Czech Republic, Italy, France, Spain, Brazil and the USA.

The coming Intertraffic next week in Amsterdam, The Netherlands will be the first event where the international WIM community will be able to meet in person. Next major WIM-event on the international agenda will be the 3rd Regional ISWIM Seminar 'Optimising Road Freight Transport using WIM Data' from 6-8 July in Pretoria, South Africa.

Recently ISWIM has published a 'Glossary of Terms' as a first in a series of ISWIM 'Practitioner's Guides'. The idea of these series is to provide WIM practitioners, technicians, and end-users with a series of practical guides illustrating "best practices" about the various aspects involving WIM technology, systems and their applications. All publications will be published via the ISWIM website

Finally I invite you all to contribute to the Newsletter. The ISWIM Newsletter is your newsletter and your articles, research initiatives, programs and learnings are very welcomed. As such, please do not hesitate to submit an article!

Thank you all for your contribution.

Chris Koniditsiotis
President – ISWIM

■ Chris Koniditsiotis | ChrisK2.0@bigpond.com

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Young Researcher Award

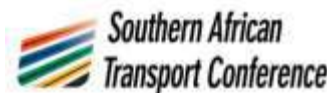
Two young scientists (Amin Moghadam and Lucas Franceschi) have received the ISWIM Young Researcher Award for 2021. They have been selected based on their contribution to the Weigh-in-Motion (WIM) field and passion through their studies or early professional life. ISWIM will fully sponsor them to attend the 9th International Conference on WIM (ICWIM9) in Brisbane, Australia in May 2023 to present their work, visit the exhibition, and further develop their industry knowledge and global network.

Lily Poulikakos, Chair ISWIM Young Researcher Award Committee.

■ Lily Poulikakos | Lily.poulikakos@empa.ch

3rd Regional ISWIM Seminar in South Africa

The 3rd Regional ISWIM Seminar will be held from the 6 - 8 July 2022 at the CSIR Convention Centre in Pretoria, South Africa. The theme of the seminar is 'Optimizing Road Freight Transport using WIM Data'. For the seminar ISWIM has joined forces with the annual Southern African Transport Conference (SATC) from 4-7 July 2022 in the same venue, hence right before and in parallel with the ISWIM Seminar. Further information on the SATC can be found on: www.satc.org.za.



The 3rd Regional ISWIM Seminar has a specific focus on Sub-Saharan Africa. Several countries in this region have been using WIM systems for many years, while others have only recently started implementation. By bringing all these users together ISWIM wants to support the development of WIM in Southern Africa. The hosts of the seminar are ISWIM, SATC, PIARC Technical Committee TC2.3 'Freight' and Mikros Systems, with the support of the ITS South Africa, South African Road Federation, SANRAL, World Bank, ASANRA, CSIR, FEHRL, HVT, Namibian Road Agency, Bakwena, N3TC, Trac-N4 and the Cross Border Agency.

Day	Time	Tuesday 5 th	Wednesday 6 th	Thursday 7 th	Friday 8 th
Morning	08:30-10:30		Plenary Session SATC	Techn. Session 3	Technical Tour
			Opening Session 3rd Regional Seminar on Weigh-In-Motion	Quality improvement of WIM data	Mantsole Control Station
	Break				
	11:00-13:00		Techn. Session 3 WIM for direct weight enforcement	Discussion Session WIM for direct weight enforcement in SA	
Lunch			At exhibition	At exhibition	On site
Afternoon	14:00 - 15:00		End-user Session 1 Practical applications of WIM	End-user Session 2 Practical applications of WIM	Technical Tour
	Break				Nyl WIM Site
	15:30-17:00		Techn. Session 3 Implementation of a WIM network	Special Interest Self regulation in overload control Closing Session	
Evening	17:30-19:30	Welcome Cocktail	Braai (BBQ South Africa style)		

Program at a glance of the ISWIM seminar.

Disclaimer

The projects described, ideas shared, and claims made in this Newsletter do not necessarily represent the official view or position of ISWIM.

While care has been taken in the preparation of the content of this Newsletter, ISWIM accepts no responsibility in its use, for any omission, or damage that may be caused and does not endorse any specific product presented in the Newsletter.

ISWIM Website

Please visit the official ISWIM website: www.is-wim.net. Here you will find information on the society, all Newsletters, past ISWIM Events, the Guide for Users of WIM and links to our all Vendors & Consultants.

New is our online, searchable library with over 300 articles, papers and reports related to Weigh-In-Motion.

ISWIM LinkedIn Group

Besides the new ISWIM website and the periodical Newsletter there is another way of keeping up to date with the latest developments in Weigh-In-Motion; the ISWIM LinkedIn Group.

In this group, researchers, end-users and vendors can find AND post short articles on initiatives, new projects, test result, or other developments related to WIM-technology, applications and data.

The ISWIM LinkedIn Group has currently more than **370** members. If you want to join, please visit:

linkedin.com/groups/13400438

The program of the seminar consists of two days with different types of sessions followed by a technical tour on the Friday and of course we have included a South African style BBBQ (Braai). The topics of the sessions are specifically selected to match current conditions, developments and challenges of end users in Southern African countries. For more detailed information on the program, registration, exhibition and sponsorship please visit: www.is-wim.net or www.www.satc.org.za.

■ **Andy Lees** | Andrew.Lees@q-free.com

■ **Jacqui Oosthysen** | satc.conference@gmail.com

■ **Chris Koniditsiotis** | ChrisK2.0@bigpond.com

9th International Conference on WIM

ISWIM is aiming to hold the 9th International Conference on Weigh-In-Motion (ICWIM9) in May 2023 in Brisbane, Australia. After Asia, Europe and the Americas the ICWIM conference will now come to Australia for the first time. Furthermore, ICWIM9 will be held jointly with the 17th International Symposium on Heavy Vehicle Transport and Technology (HVTT17). After Paris, France in 2008 this will be the second time that an ICWIM conference will be held jointly with a HVTT symposium.



View of Brisbane, Australia.

The joint event will be held as a series of scientific and technical sessions, a few panel discussions and end-users' sessions with best practices and practical application of WIM data. The conference is designed to address the broad range of technical topics related to heavy vehicles, size and weight measurement systems, and transport technologies, providing access to the latest research results and best practices, and related policy issues. It is a multi-disciplinary, inter-agency supported event especially intended for:

- Agencies responsible for the design, construction and maintenance of road infrastructure, pavements and bridges.
- Government agencies responsible for size and weight enforcement and the operation and control of heavy vehicles.
- Agencies using weight information to support policies on (international) freight mobility, traffic safety, and road pricing.
- Researchers and student in WIM technologies, WIM data analysis, design of road infrastructures vehicle-road interaction and freight transport logistics.
- Manufacturers, vendors and users of WIM systems, data, or related equipment and services.

ISWIM Vendors

Axtec	www.axtec.co.uk
Betamont	www.betamont.sk
CAMEA	www.cameatechnology.com
Captels	www.pesage-captels.com
Cestel	www.cestel.eu
Ciemsas	www.ciemsas.com.uy
Cross	www.cross.cz
Dynaweigh	www.dynaweigh.com
ECM	www.ecm-france.com
Excel Technology	www.exceltech.com.au
GEC Scales	www.gecscales.com
Girwim	www.girwim.com
Intercomp	www.intercompcompany.com
IRD / PAT Traffic	www.irdinc.com
iWIM	www.iwim.it
Kistler	www.kistler.com
Mikros	www.mikros.co.za
Osmos Group	www.osmos-group.com
Q-free	www.q-free.com/products
Sterela	www.sterela.fr
TE Connectivity	www.te.com
TDS	www.traffic-data-systems.net
Tramanco	www.tramanco.com.au
VanJee Technology	www.wanji.net.cn

Interested to join the ISWIM Vendors, just contact:

■ **Andy Lees** | andrew.lees@q-free.com

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For more information on the submission of abstracts, registration for delegates, the possibilities for sponsoring and participating in the exhibition will be made available on: www.is-wim.net, www.linkedin.com/groups/13400438/ and www.hvtt.org or contact:

- [Chris Koniditsiotis](#) | ChrisK2.0@bigpond.com
- [Gavin Hill](#) | GavinH@tca.gov.au

IRD WIM system for Prescreening in Tanzania

The Federal implementation of the East Africa Community (EAC) Vehicle Load Control Act in January, 2019, Tanzania has accelerated improvements to commercial vehicle operations to achieve the objectives of the law, which include protecting roads, improving road safety, and reducing total transportation costs. Fairness is also a factor as significant fines are now being levied on irresponsible truck drivers who overload cargo to seek a competitive advantage.

The system integrator was IRD's regional partner, Avery East Africa (AEA), who were responsible for system installation and WIM calibration. IRD provided AEA with factory training and remote support, as well as supplying complete turnkey systems including IRD-PAT Bending Plate® WIM sensors, iSINC® WIM controllers, piezoelectric axle sensors, cameras and software. Factory Acceptance Tests were performed for all components prior to shipping them to AEA for installation.



AEA Tech David Kemoi, WIM and Single/Dual sensor (Kimokouwa, TZ).

The WIM preclearance systems are used to sort vehicles approaching weigh stations into weight-compliant vehicles that can bypass inspection and overweight vehicles which are directed to an inspection station for static weighing and issuance of overweight citations. The systems also include single/dual tire detection as the EAC law reduced maximum allowable weights for single tires. All commercially classed vehicles have digital overview images appended to their vehicle record, as well as images of their license plates.

The project required accuracies consistent with ASTM Type I for preclearance. The single-threshold bending plates easily meet the standard, providing gross vehicle weight (GVW) measurements that are accurate within $\pm 6\%$ GVW for 95% of vehicles.

ISWIM Consultants

Corner Stone	www.corner-stone-int.com
FIMAU	www.FIMAU.com
NMI	www.nmi.nl
RTS GmbH	doupal@hispeed.ch
Static Motion	www.staticmotion.co.za

Interested to join the ISWIM Consultants, just contact:

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ISWIM Guide for Users of WIM

The ISWIM Guide for Users of Weigh-In-Motion serves as a basic, yet comprehensive introduction to Weigh-In-Motion. The Guide covers different aspects related to the working, specifying, buying, installing, testing, maintaining and using of WIM systems and data. To enhance accessibility for users starting with WIM, these topics are described in easy-to-understand language.



A PDF version of the WIM User Guide can be downloaded at the ISWIM website: www.is-wim.net.

- [Hans van Loo](#) | hans.vanloo.int@gmail.com



IRD-PAT Bending Plates/Machine Vision & iSINC (Dakawa, TZ).

The new sites in Tanzania will help the country's national road agency, TANROADS, deliver on their vision of providing a sustainable, safe and environmentally friendly road network that supports the economic development of Tanzania.

■ **Brendan Ezeanowi** | brendan.ezeanowi@irdinc.com

Discouraging overloading with BISON WIM

Today, roads are evolving more than ever before thanks to many governments funding "smart road" programs with the goal of bringing the roads of yesteryear into the world of tomorrow, where technologies such as autonomous driving will be standard. However, one must not forget that road infrastructure is still made of asphalt and concrete and, now more than ever, it suffers from ageing problems due to the increase in traffic loads.



One of the many bridges in Italy monitored by a iWiM BISON system

As we know, one of the main goals of installing a weigh-in-motion system is the protection of aging road infrastructure from premature failure due to excessive loading. It is in fact known from literature that a 20% overload roughly equates to a doubling in caused road damage (source: AASHTO pavement design guide).

Coming Events (subject to change)

Intertraffic Amsterdam

Amsterdam, the Netherlands
29 March – 1 April 2022
www.intertraffic.com

NaTMEC 2022 (virtual)

Idaho, USA
13-16 June 2022
www.natmec.org

ISWIM 3rd Regional Seminar

Pretoria, South Africa
6-8 July 2022
www.is-wim.net

ITS World Congress

Los Angeles, CA, USA
18-22 September 2022
www.itsamericaevents.com

CVSA Annual Conference

Rapid City, SD, USA
18-22 September 2022
www.cvsa.org/events

Transport Research Arena (TRA)

Lisbon, Portugal
14-17 November 2022
www.traconference.eu

Gulf Traffic

Dubai, UAE
6-8 December 2022
www.gulftraffic.com

Transport Research Board (TRB)

Washington, USA
8-12 January 2023
www.trb.com

ICWIM9 + HVTT17

Brisbane, Australia
21-25 May 2023
www.is-wim.net

PIARC World Road Congress

Prague, Czech Republic
2-6 October 2023
www.piarc.org

Do you know other WIM-related events? Please contact:

■ **Hans van Loo** |

hans.vanloo.int@gmail.com

However, WIM systems are often placed on the infrastructure itself, meaning that, while overload trucks can be identified and sanctioned, their passage on the infrastructure is not prevented. One possible solution that road operators have adopted is placing sensors on every road access to the infrastructure: while this is exceptionally effective, it is impractical in case of complex road networks where the installation of WIM systems may not always be suitable.

A sharp decrease in the number of overweight trucks is observed a few weeks after the installation of the weigh-in-motion system.



Data has been collected by a WIM BISON system installed on a bridge in northern Italy
Source: WIM 6.1.1 - Created with Datawrapper

Interestingly, the data that iWIM has collected over the years suggests that much like a speed camera installation discourages drivers from speeding, a W.I.M. installation can discourage truckers from overloading their vehicles. Thanks to its distinctive and recognizable plate design, the BISON system was able to provide reductions up to 70-80% in the number of overloaded trucks engaging the infrastructure.

Daily number of passing overloaded trucks.

These results suggest that weigh-in-motion systems should become standard equipment on road networks thanks to the great improvement in road safety.

■ **Guido Farinacci** | guido.farinacci@iwim.it

■ **Luca Trainotti** | luca.trainotti@iwim.it

Girwim achieves OIML R134 Certification

The OIML R134 is the international recommendation for automatic instruments for weighing road vehicles in motion and measuring axle loads issued by the International Organization of Legal Metrology (OIML). The Giropès Girwim system has achieved OIML R134 certification for accuracy class 0.5 for vehicle mass and class B for axle load measurements.



Girwim B615 data logger and DPPEM scales

ISWIM Glossary of Terms

After the 8th International Conference on Weigh-In-Motion (ICWIM8) in 2019 ISWIM has started the development of the 'Practitioners Series'. The aim of these best practices publication series is to provide WIM practitioners, technicians, and end-users with a series of practical guides illustrating "best practices" about the various aspects involving WIM technology, systems and their applications. All publications will be published via the ISWIM website:

www.is-wim.net.



Earlier this year the first guide in the series was published. The 'Glossary of Terms', with an overview of definitions of terms frequently used in WIM. ISWIM guide contributors have discussed practices used around the world, some differences in definitions and terms are included, representing the rich spectrum of global WIM practitioners. It does not circumvent any available standard WIM specifications or calibration procedures.

The following Practitioner Guides are expected later this year:

- WIM data for bridge engineering.
- Best practices of calibration of in-road WIM systems

For more information on the ISWIM Practitioners' Guides contact:

■ **Olga Selezneva** | oselezneva@ara.com

■ **Hans van Loo** | hans.vanloo.int@gmail.com

This certification demonstrates the high reliability and pressure of our DYNA B615 data logger together with the BPPM axle weighing platform. According to the regulations, it implies an accuracy of +/-0.50% of the vehicle's mass and +/-1.00% for axle load measurements, for speeds up to 30 km/h.

Giropès' efforts to achieve this accreditation means a breakthrough for bringing our B615 data logger and BPPM axle weighing platform to the market. The DYNA B615 is a data processing unit designed to interface with Girwim systems. It provides real-time traffic monitoring by collecting key vehicle data such as weight, axle weight or axle tandems, axle distance and speed, and more. This certification, together with the GESDYN software, allows us to offer a powerful and robust product as a complete system for weighing vehicles in motion.

We hope that this accreditation, and any subsequent ones, will enable our customers and distributors to develop new projects in the field of weighing vehicles in motion.

■ [Jean Paul Belinga](mailto:jpbelina@giropes.com) | jpbelina@giropes.com

The road to Direct Enforcement in Brazil

On the way to direct enforcement in Brazil, the CCR group, by the CCR "Via Costeira", in collaboration with Transportation and Logistics Laboratory (LabTrans) and Foundation for Amplifying University Research and Extension (FAPEU), is conducting a series of studies with different WIM systems installed at the test site of Araranguá, located on Highway BR-101 in the state of Santa Catarina. The test site has a tradition of more than 14 years with experiments on WIM systems and the results obtained have allowed the wide use of technology in the Brazilian states.



WIM Test site at Araranguá, highway 101, Santa Catarina, Brazil.

Recently, the Brazilian government granted the stretch of the highway and CCR took over the concession for 220.4 kilometers of BR-101 in Santa Catarina. The road concession began in September 2020. The National Agency for Land Transport (ANTT) approved, in July 2021, the beginning of the research project to be conducted on the site. The test site is unique in the world consisting of differentiated segments with different types of pavements, WIM systems and has a weight station with a certified reference scale.

On-going WIM Research Projects in the USA - 1

An overview of research initiatives currently underway in the United States on the advancements of WIM technology and applications.

For more information contact:

■ [Olga Selezneva](mailto:oselezneva@ara.com) | oselezneva@ara.com

Development of a self-powered WIM

The novel low power WIM system uses cylindrical piezoelectric (PZT) elements for the dual purpose of sensing axle loads and harvesting mechanical energy for its operation. The system was tested in the laboratory by applying a range of loads and loading frequencies through a servo-hydraulic loading system. The results suggest sufficient accuracy and precision in measuring vehicle speeds, axle loads and determining vehicle class. Its low power requirements provide an inexpensive and sustainable method for obtaining roadway traffic data.

■ [T. Papagiannakis](mailto:t.papagiannakis@utsa.edu) | t.papagiannakis@utsa.edu

Development of a Cost-Effective Sensing System for Integrated Traffic and Pavement Response Monitoring

This project proposes to develop a long life WIM system with much lower costs using the piezoelectric sensors developed in a former EAR (Exploratory Advanced Research) project. The system will be named as P-WIM. The P-WIM will essentially consist of several piezoelectric disks sealed in a protective package made from engineering plastics. A wireless data transmission module will be included in the package of the P-WIM. The P-WIM will be powered by solar panels and supplemented by the energy harvested from pavement deformations and vibrations.

■ [Eric Donnell](mailto:edonnell@enr.psu.edu) | edonnell@enr.psu.edu

The main objectives of the research conducted by the CCR are:

- Take advantage of the existing infrastructure, establish a research ecosystem with several technologies and develop a tool for integration and systemic evaluation of the data collected by the various WIM systems in the context of direct enforcement.
- Propose minutes of normative documents for the operationalization for direct enforcement and for the projects and installations requirements on WIM technology.
- Dissemination of scientific and technological knowledge to the community in general and training of qualified professionals.

■ [Lucas de Almeida Soares Moreira](#) | lucas.moreira@grupoccr.com.br

KiTraffic Digital: Safer roads with the world's highest accuracy

With traffic growing globally, road surfaces and bridges are under serious stress, calling for effective ways to monitor roads and enforce traffic regulation. At this year's Intertraffic from March 29 – April 1, 2022 in Amsterdam, KiTraffic Digital from Kistler is celebrating its world premiere: Visit booth 410 in hall 01 to learn about the Weigh In Motion system's unprecedented accuracy, which enables direct weight enforcement on a large scale. The system is the first to be awarded the OIML R134 certificate by the Swiss METAS institute for metrology for class F5, confirming it as the most accurate High Speed (HS) Weigh In Motion solution available on the market.



Kistler's KiTraffic Digital Weigh In Motion System.

KiTraffic Digital consists of multiple rows of Lineas Digital WIM sensors strips that are built into the road surface. These sensors detect vehicles without the need for inductive loops and are able to distinguish single from dual tires. Based on their measuring signal, KiTraffic Digital calculates the wheel, axle, and total weight of each vehicle.

On-going WIM Research Projects in the USA - 2

Integration and Operation of an Advanced WIM System for Autonomous Enforcement of Overweight Trucks

The project will assist and support the New York City Department of Transportation (NYCDOT) in establishing the legislation to operate the automated enforcement system and extend the service life of the Brooklyn-Queens Expressway (BQE) corridor. The team will utilize two test beds on both sides of the BQE corridor to develop the guidelines and specifications for the operation of the overweight enforcement system in an urban area. The deliverables will include, but not be limited to, an updated NYCDOT in-house calibration procedure and methodology to assure weight accuracy, the attainable accuracy target under current road-way conditions, and updates of service life predictions for BQE bridges.

■ [Hani Nassif](#) | nassif@soe.rutgers.edu

The Sensitivity and Accuracy Assessment of Vehicle WIM System Measurement Errors Using In-Pavement Strain-Based Sensors

The objective of this study is to provide scientific evidences of the systematic sensitivity analysis on the influences of external contributors on the measurement accuracy of a WIM system based on in-pavement strain sensors. The main external contributors to be investigated in this study include air temperature, vehicle wander behaviour, air humidity, and wind speed on the measurement accuracy of a WIM system.

■ [Robin Kline](#) | robin.kline@dot.gov

The new digital system has been recently certified by the Swiss Federal Institute of Metrology, METAS, for a wide range of axle loads, ranging from 1 to 20 tons. The certified speed ranges are between 10 and 100 km/h for heavy trucks, and up to 130 km/h for light vehicles and vans. The accuracy class F5 indicates that the weighing precision is +/- 2.5 percent or better for the gross vehicle weight during initial verification and +/- 5 percent or better during operation.

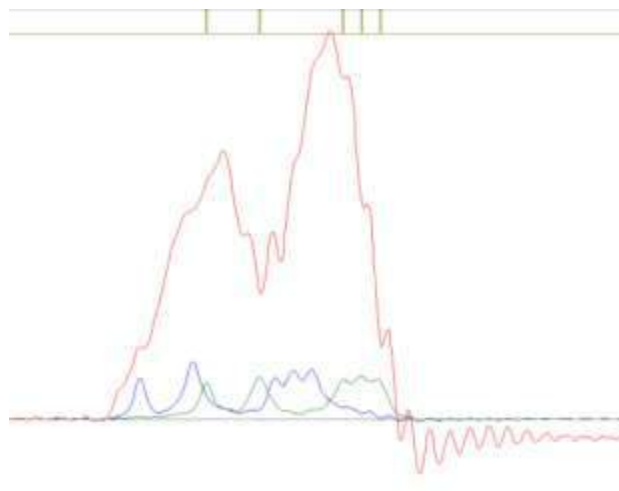
■ [Tomas Pospisek](#) | tomas.pospisek@kistler.com

Is it possible to avoid a Bridge-WIM system?

Bridge weigh-in-motion systems are not visible to HGV drivers, since their sensors are installed on the bottom side of a bridge and no parts of the system are visible on the road surface. This makes avoiding B-WIM weight control virtually impossible.

But an interesting case happened at the end of last year in Slovenia, where police regularly use SiWIM bridge weigh-in-motion systems for preselection purposes. A driver of a 59-ton 5-axle articulated lorry without an exceptional transport permit tried to avoid detection by weigh-in-motion systems by driving towards his destination on the emergency lane of the motorway. Despite not being calibrated for weighing vehicles on the emergency lane, the SiWIM system was able to detect the vehicle's signal and also measure its gross weight with a 6 % percent accuracy - red line in the figure indicates signal from one of the weighing sensors, blue and green lines indicate signals from axle detection sensors. The B-WIM supervisor from the traffic information centre forwarded the information on the vehicle to the police, who prevented the driver from continuing his journey.

Since the B-WIM systems use the whole bridge as a weighing platform, their weighing sensors have no problems with weighing vehicles, which want to avoid detection by driving on the emergency lane.



Signals from the described event detected by SiWIM's sensors.

These kinds of severely overweight vehicles do not only cause extreme road degradation, they are also dangerous from traffic safety point of view, which is why the coordination between traffic information centre and the police is so important. The described real-life example showed the practicality of bridge weigh-in-motion systems when it comes to unusual driving patterns of drivers, who would like to avoid detection.

■ [Matija Mavrič](#) | matija.mavric@cestel.si

On-going WIM Research Projects in the USA - 3

The LTPP Data Analysis: Develop Practical Tools and Procedures to Improve WIM Data Quality.

For over a decade, the FHWA Long-Term Pavement Performance (LTPP) program collected a massive amount of WIM data, along with information about the performance of WIM equipment. This and other data sets provide an opportunity to develop more advanced WIM tools to help state highway practitioners perform WIM site selection, sensor selection, maintenance, development of calibration procedures including frequency, and data quality acceptance.

The objective of this research is to develop the next generation of tools and procedures to improve accuracy and increase reliability of WIM data through (1) more appropriate site selections; (2) WIM system selection, installation, calibration, and maintenance; (3) data analysis methods; and (4) quality control and assurance procedures.

■ [Camille Crichton-Summers](#) | ccrichton-summers@nas.edutti.tamu.edu

Economic benefits of truck weight and safety enforcement Improvements.

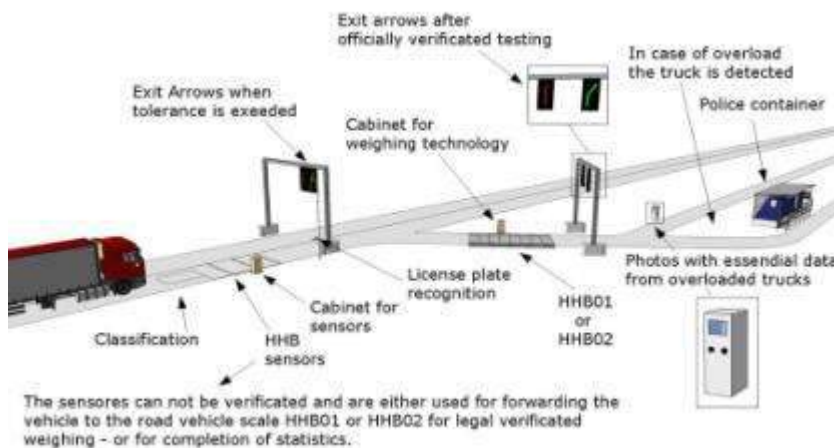
The objective of this project is to identify the specific quantitative return on investment dollar for dollar of a weigh station, a weigh in motion system, a weigh scale, a virtual enforcement site, a pull off, and weight and safety enforcement operations in general that would definitely help MnDOT and the State Patrol to articulate the value of investing in these areas in the future.

■ [Lubinda Walubita](#) | L-Walubita@tti.tamu.edu

New Dynaweigh HHB „Gewichtsblitzer“ (Weight flasher).

A NEW complement for our Systems HHB01 and HHB02 – WIM scales which are able for verification and can be used 24hours a day for automatic weighing. Vehicles that are overloaded or have too high axle load(s) are recorded.

Both the HHB01 an HHB02 are dynamic truck scales with a type-examination certificate for legal verification form the Notified Bodies of Germany (PTB Braunschweig) and Austria (BEV Vienna) with accuracy class D2 (+/- 1 %) both for total mass and axle load from 5 to 35 km/h meeting the requirements of the OIML R134 regulations. The scales have been installed for several years at the traffic control station on the Austrian A5 northern freeway near Schrick and are in constant use and are a system for monitoring traffic safety by the Austrian enforcement executive.



Overview of the new Dynaweigh “Gewichtsblitzer”

Recently we have added a new component to complete our automatic weighing systems with a high speed WIM system (including classification) which automatically detects vehicles with focus on overload. Using overhead traffic signs/ arrows the pre-selected vehicles are instructed out from traffic-flow. On the paralel branch lane the exact weight is determined with HHB01 or HHB02 scales with legal verification (both with accuracy class D +/- 1%).

In case of overload the vehicle is either controlled directly or the vehicle is immediately diverted for closer examination by the executive responsible for weight enforcement. The collected data, vehicle type and license plate is also automatically forwarded by means of the „Gewichtsblitzer” – Weight flasher.

Finally we are looking for distributor partners world wide.

■ Renate Batsch-Rosum | office@dynaway.com

OSMOS WIM+D[®], a comprehensive approach

Bridges are suffering from the effects of both the increase of the traffic loads and their ageing. A way to appraise the evolution of their behavior is to implement a structural monitoring system so called SHM. OSMOS system WIM+D[®] aims at combining Weigh in Motion (WIM) with Structural Health Monitoring (SHM) solutions.

NaTMEC 2022 (virtual) 13-16 June Boise, Idaho

This year’s National Travel Monitoring Exposition and Conference (NaTMEC) will be held from 13-16 June in Boise, Idaho, USA as a virtual event. More information at: www.natmec.org



Beyond the traditional presentation formats of lectern sessions, poster sessions, lightning talk, and show case sessions with vendor demonstrations. The key topics are:

- Data Applications; Safety; Cyber Security; Third Party Data, Applications, and Utilizations;
- Transportation Data Collection, Processing, and Tools
- Program Development, Performance Measures, Communicating Reports, and Ensuring Data Requirements and Quality Standards Meet Program Needs;
- Emerging Equipment, Technologies and Capabilities to Address Travel Monitoring Basics and Beyond

NaTMEC will be presented by the Idaho Transportation Department in conjunction with the Pacific North-west Transportation Consortium with support from the Federal Highway Administration. Registration is now open and information for exhibitors and sponsors is available on the website: www.natmec.org.

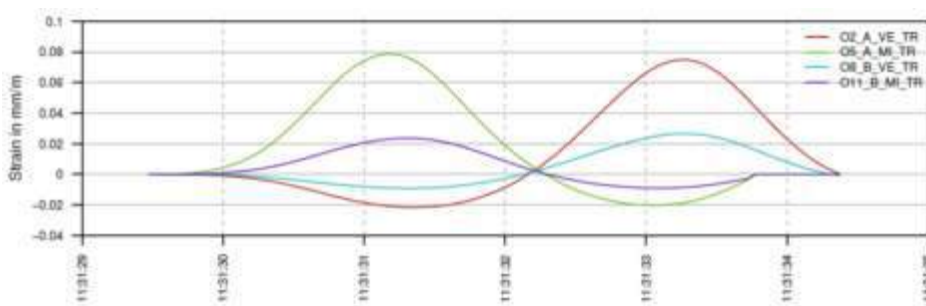
■ Margaret Pridmore | margaret.pridmore@itd.idaho.gov

B-WIM technologies are special WIM systems using existing bridges as scales. They use strain measurements to evaluate the gross and axle loads generated by trucks. With OSMOS WIM+D®, the strain measurements are secured by optical strand, a long basic basis fiber optic sensor. Appropriate algorithms transform variation of strain into load figures.



WIM+D system under the Auzouer bridge in France.

WIM+D® implies a low number of sensors and, as WIM bridge technologies, is not intrusive for the pavement. In addition, it should be noted that both weigh in motion and structural health monitoring are combined with the same sensors, providing the asset manager with an efficient and comprehensive solution. WIM delivers data relative to gross and axle loads, speed and effects due to one or several passing trucks. It gives statistical data on loads and overloads and allows the delivering and the control of special permit vehicles. It may also be used for bridges posting decisions.



Typical strain signals from the WIM+D system.

In the same time, strain and vibration measurements provide data on the bridge's structural behavior (bending, shear) and their evolution during its life cycle. WIM+D® is already operating successfully in several countries: France, Italy, Greece, Kuwait and Taiwan. Recently WIM+D® has been tested, with the collaboration of TÜV Rheinland on a viaduct located south Italy. According to the COST-323 methodology, the system was granted the class A(5).

■ **Gérard Baron** | baron@osmos-group.com

Intertraffic Amsterdam is back in 2022

The bi-annual Intertraffic in Amsterdam, The Netherlands is one of the leading global trade events for stakeholders involved in mobility, traffic and transport systems. It will be held in the RAI exhibitions halls in Amsterdam, The Netherlands from Tuesday March 29th to Friday April 1st.

Intertraffic offers industry professionals a complete overview of products and services of the world's leading mobility companies. We also provide you with the latest traffic technology news, views & analysis on smart mobility, road safety, sustainability, traffic management, parking, smart infrastructure, both software & hardware solutions. More information at: www.intertraffic.com

At this year's Intertraffic you will be able to visit the following ISWIM Vendors and Consultant:

- Betamont at 05.250
- Camea at 05-207
- Captels at 05.300
- Cestel at 01.227
- Cross at 01.307
- ECM at 05.318
- Giropès at 01.112
- Intercomp at 01.211
- IRD at 01.116
- iWIM at 01.510
- Kistler at 01.410
- NMI at 08.762
- Q-free at 01.215
- Sterela at 05.260
- TDS at 01.517
- VanJee at 05.342

I am looking forward to meet you in person in Amsterdam.

■ **Hans van Loo** | hans.vanloo.int@gmail.com

Intercomp MicroStrip™ Sensor

Obtaining reliable vehicle weight and classification data with WIM sensor systems, while keeping costs down, is a major challenge for governments and highway concessionaires. Piezoelectric sensors, the go-to option for large-scale, low-cost applications, are not reliably accurate and have limited durability, resulting in a high replacement rate, and increased operating costs.

The answer to this problem is Intercomp's new MicroStrip™ Sensor, which offers a cost-effective alternative to piezoelectric sensors for WIM data-collection. The MicroStrip™ Sensor is lighter, lower profile and more economical than Intercomp's standard strip sensor with the same benefits of our GaugeSense strain-gauge load cell technology for WIM calculation, providing better accuracy and greater robustness than piezoelectric sensors.



Intercomp's new Microstrip™ sensor installed in a US highway.

GaugeSense technology eliminates issues that plague low-cost sensors piezoelectric, like positional sensitivity and requiring temperature compensation calculations. The strip sensors include a built-in temperature gauge, which allows for temperature compensation at the point of weighing. This not only increases accuracy, but also means the sensors require less-frequent calibration, even in climates with large temperature ranges. With a low-profile height, these waterproof sensors are fast and easy to install, resulting in minimal disruption to your traffic, and asphalt. Finally, no charge amplifier is required, reducing overall system costs.

High quality data, longer sensor life, and lower ownership costs can benefit all WIM operations, with less downtime, fewer labor requirements, and other costs associated with sensor replacement. Talk to an Intercomp representative to see how this system can help you.

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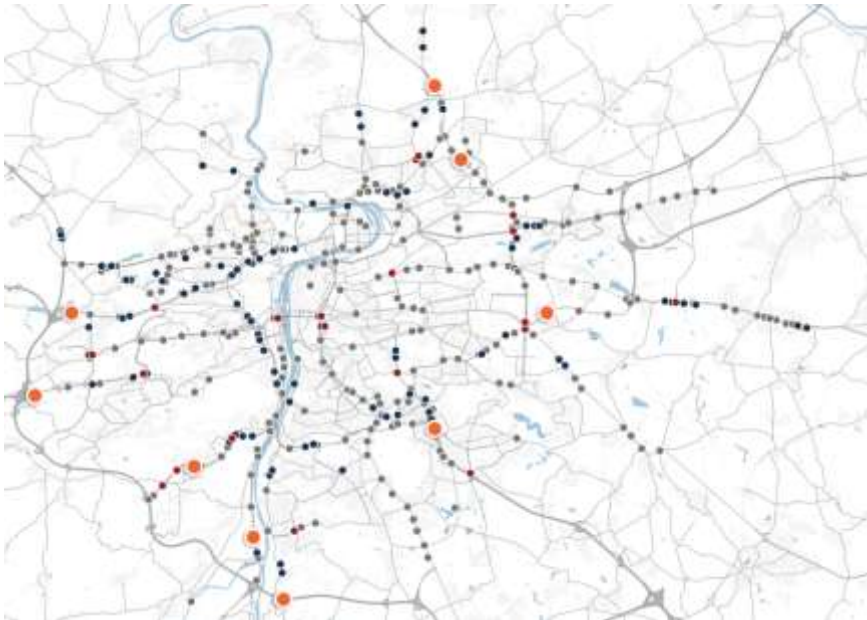


CAMEA Presenting WIM technology at World Expo

We are happy to be a part of a project called the City for the Future. We were chosen by trusted organizations – the Ministry of Industry and Trade of the Czech Republic and the CzechTrade agency - along with other 31 innovative companies from our country. Together, we created a vision of the city of tomorrow. Watch the video at www.cityforthefuture.com, where you can also read more about the concept.

To us, our participation is a great signal that Weigh-In-Motion is not only recognized as an efficient tool in road protection, but also as a part of a complex approach to challenges of the future.

Protecting the city roads using WIM is not an entirely new idea though. For the last decade, we have been building a network of WIM stations at key entrances of the Czech's capital Prague, marked in orange in the picture.



WIM systems around the city of Prague, Czech Republic.

Between January 15 and January 29, the City for the Future was presented at the World Expo in Dubai – at an event that has recorded over 13 millions of visitors so far. We hope that this kind of presentation could help develop the market with WIM and related solutions, with an ultimate effect of improving traffic safety, infrastructure quality and management of public money and resources.

The Forbes magazine took care of the promotion, and we can claim that the project drew attention, with government representatives as members of audience, even resulting in an inter-governmental agreement on economic and technical cooperation between countries. We are curious to see if there is a shift in WIM's popularity in the region in the upcoming years.

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